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(54) **METHOD AND CONTROL UNIT FOR ADAPTING AN UPPER HEADLIGHT BEAM BOUNDARY OF A LIGHT CONE**

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(58) **Field of Classification Search**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,144,158 A 11/2000 Beam
6,396,397 B1* 5/2002 Bos B60N 2/002
180/167

(Continued)

FOREIGN PATENT DOCUMENTS

CN 101242696 A 8/2008
CN 201580308 U 9/2010

(Continued)

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(57) **ABSTRACT**

A method for adapting an upper headlight beam boundary of a light cone of at least one headlight of a vehicle includes reading in at least one configuration position of an illumination unit on another vehicle and/or of a vehicle contour of the other vehicle to provide an identification signal of the other vehicle. In addition, the method includes ascertaining the type of the other vehicle, using the identification signal of the other vehicle, and outputting a control signal for adapting the upper headlight beam boundary, the control signal being output taking the ascertained type of vehicle into account.

12 Claims, 8 Drawing Sheets

